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# Surgical Treatment of Spontaneous Supratentorial Intracerebral Hemorrhage in Sweden 2011-2015

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# Spontaneous Supratentorial ICH is a Common Neurosurgical Problem!!!



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- Spontaneous supratentorial ICH incidence is 20 cases per 100 000 population
- Whether surgery improves the outcome is a subject of intense debate
- The existing guidelines are quite generally formulated due to the lack of solid evidence

## **AHA/ASA Guideline**

### **Guidelines for the Management of Spontaneous Intracerebral Hemorrhage**

**A Guideline for Healthcare Professionals From the American Heart  
Association/American Stroke Association**

**Guidelines**

**European Stroke Organisation (ESO) guidelines for the management of  
spontaneous intracerebral hemorrhage**



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# How We Do It!



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- The purpose is to elucidate potential differences in ICH treatment and surgical indications among the neurosurgical centers in Sweden
- Retrospective study
- All patients surgically treated for spontaneous supratentorial ICH in Sweden between the years 2011-2015
- Primary end-point: 30-day mortality



# Sweden



- Six Neurosurgical Centers
  - Skåne University Hospital in Lund (1,8 million)
  - Sahlgrenska University Hospital in Gothenburg (1,8 million)
  - Linköping University Hospital (1,0 million)
  - Karolinska University Hospital in Stockholm (2,3 million)
  - Uppsala University Hospital (2,0 million)
  - Umeå University Hospital (0,9 million)
- Homogenous tax-funded health care system, ensuring everyone equal access and right to health care services



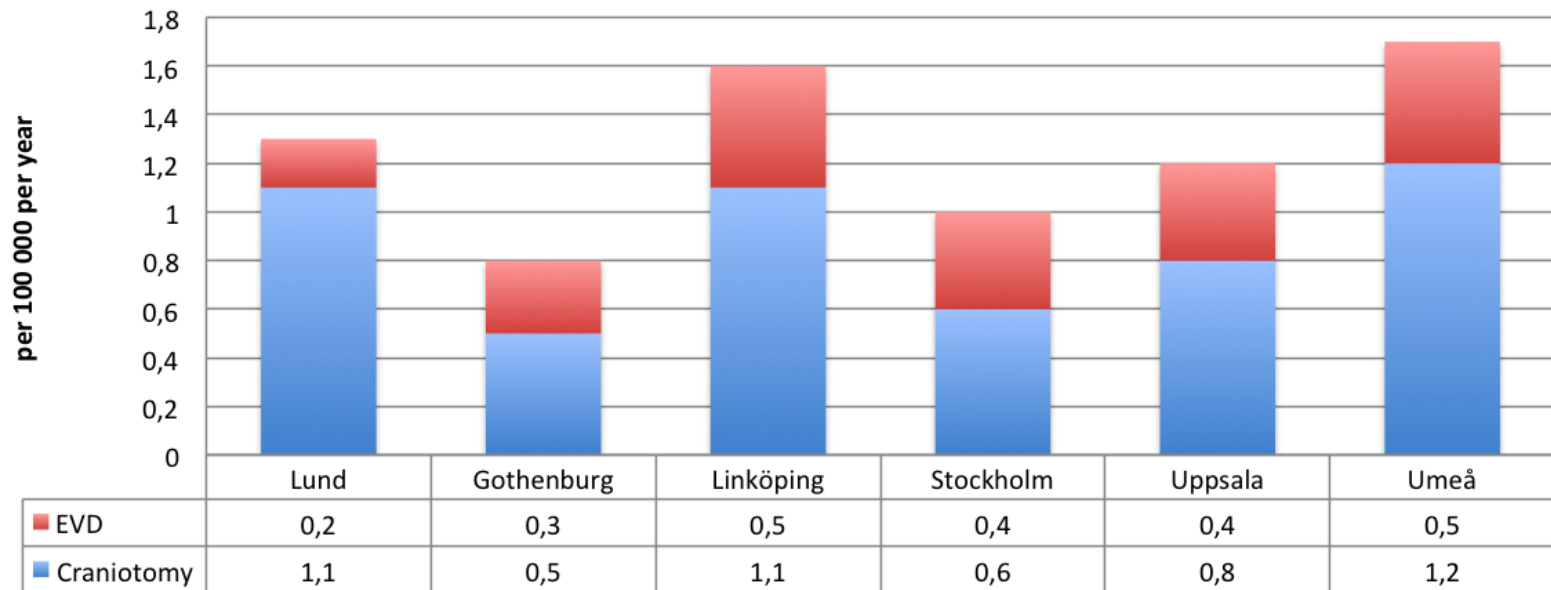
# Results 2011-2015



- 577 patients were treated surgically
  - 401 with craniotomy and hematoma evacuation
  - 176 with external ventricular drainage (EVD) alone
- Incidence
  - Craniotomy and hematoma evacuation was 0,8/ 100 000
  - EVD alone was 0,4 / 100 000



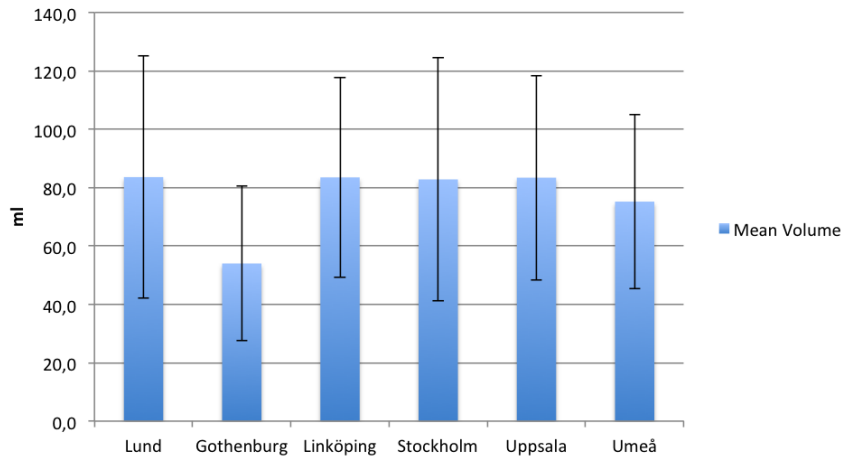
## Surgically Treated Supratentorial ICH in Sweden Between 2011-2015



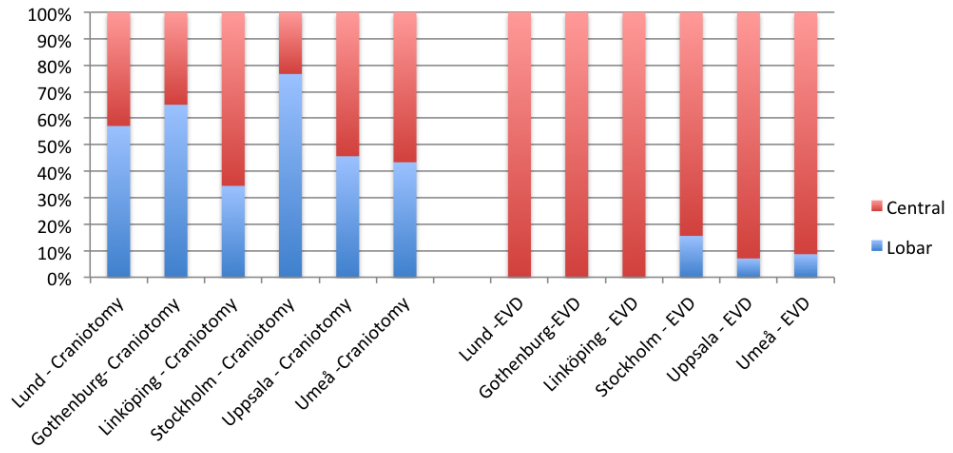
- The number of patients treated at the different centers is similar when adjusted for the size of the population
- The majority of the patients are treated with craniotomy and hematoma evacuation



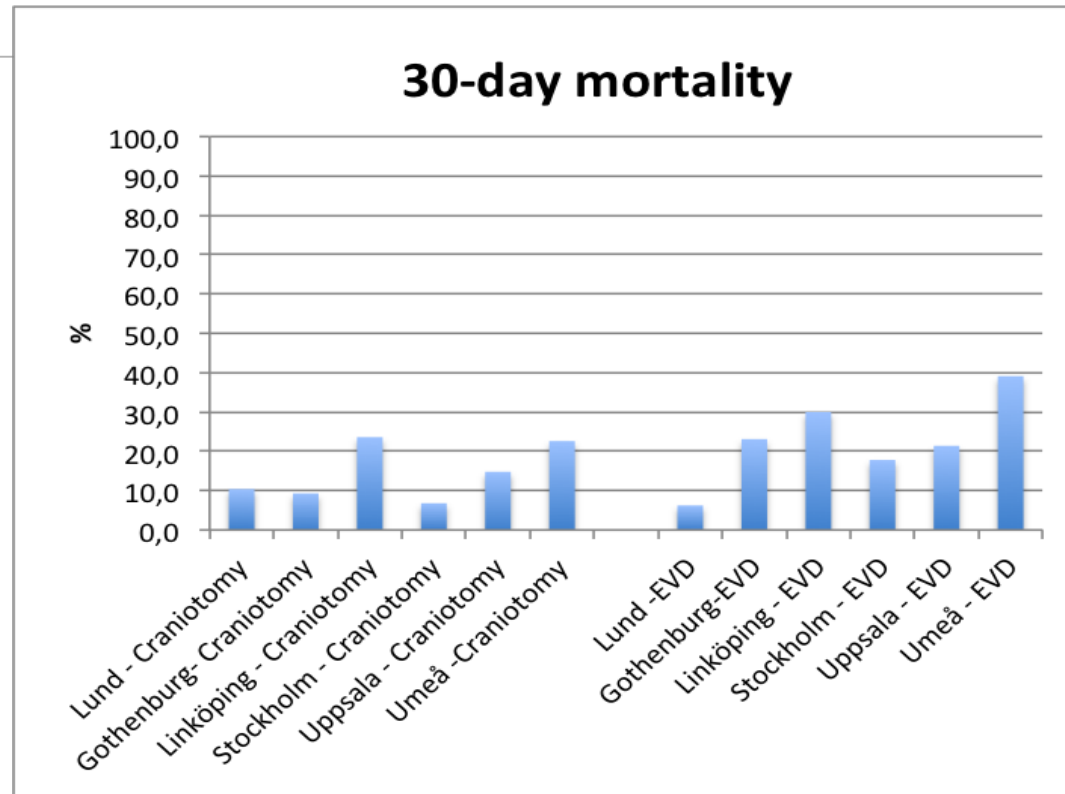
Hematoma Volume



Hematoma



- The average hematoma volume are similar in patients treated with craniotomy and hematoma evacuation
- Both central and lobar hematomas are operated with craniotomy and hematoma evacuation in contrast to EVD treatment alone, almost entirely used in central hematomas



- 30-day mortality is comparable and the small variations may be explained by the small number of patients at some of the centres.





- To conclude
  - despite rather vague guidelines for surgical ICH evacuation, there was a surprising homogeneity of indications, post-operative management and patient outcome when comparing surgical ICH treatment in all Swedish neurosurgical centers over a 5-year period.



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# Thanks!



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